

What is claimed is:

[Claim 1] A valve implanting device comprising:

- a central hub adapted to receive an inner guide wire;
- a plurality of spokes extending from the central hub, each spoke having a first end engaging the central hub and a second end opposite the first end;
- a plurality of fixating hubs, each fixating hub engaging one of the spokes at the second end of the spoke, and each fixating hub adapted to receive an outer guide wire;
- a plurality of gripping members, each gripping member engaging one of the fixating hubs and an adjacent gripping member; and
- a plurality of valve flaps, each valve flap attached to at least one of the gripping members.

[Claim 2] The implanting device of claim 1, wherein the device is collapsible about the central hub.

[Claim 3] The implanting device of claim 1, wherein the plurality of spokes includes at least three spokes.

[Claim 4] The implanting device of claim 1, wherein the plurality of spokes includes at least six spokes.

[Claim 5] The implanting device of claim 1, wherein the plurality of spokes includes at least two types of spokes.

[Claim 6] The implanting device of claim 1, wherein the plurality of spokes includes fixed spokes and expandable spokes.

[Claim 7] The implanting device of claim 6, wherein the fixed spokes have a fixed length.

[Claim 8] The implanting device of claim 7, wherein the expandable spokes have a minimum length equal to the fixed length of the fixed spokes.

[Claim 9] The implanting device of claim 6, wherein the fixating hubs engage fixed spokes.

[Claim 10] The implanting device of claim 1, wherein at least one of the gripping members has a fixed portion and a rotating portion.

[Claim 11] The implanting device of claim 10, wherein the fixating hubs are manipulated to rotate the rotating portions of the gripping members.

[Claim 12] The implanting device of claim 10, wherein rotating the rotating portion of each of the gripping members stabilizes the implanting device.

[Claim 13] The implanting device of claim 1, wherein each of the fixating hubs includes a body, a first gear engaging a second gear, the second gear engaging a third gear, and the third gear engaging a fourth gear, a spring biasing the first gear toward a notch, a first shaft engaging the fourth gear, and a second shaft engaging the first shaft and a rotating portion of one of the gripping members.

[Claim 14] A method for implanting a valve device, the method comprising:
providing a valve implanting device having (i) a central hub adapted to receive an inner guide wire, (ii) a plurality of spokes extending from the central hub, each spoke having a first end engaging the central hub and a second end

opposite the first end, (iii) a plurality of fixating hubs, each fixating hub engaging one of the spokes at the second end of the spoke, and each fixating hub adapted to receive an outer guide wire, (iv) a plurality of gripping members, each gripping member engaging one of the fixating hubs and an adjacent gripping member, (v) a plurality of valve flaps, each valve flap attached to at least one of the gripping members, (vi) an inner guide wire removably fastened to the central hub, and (vii) an outer guide wire removably fastened to each of the fixating hubs;

collapsing the device about the central hub;

inserting the device into a patient's vein or artery;

positioning the device in a desired deployment location;

expanding the device about the central hub; and

stabilizing the device in the desired deployment location.

[Claim 15] The method of claim 14, wherein the inner and outer guide wires are used to position the device in the desired deployment location.

[Claim 16] The method of claim 14, wherein expanding the device includes holding the outer guide wires in a fixed position and pushing the inner guide wire toward a distal end of the inner guide wire.

[Claim 17] The method of claim 14, wherein expanding the device includes holding the outer guide wires in a fixed position and pulling the inner guide wire toward a proximal end of the inner guide wire.

[Claim 18] The method of claim 14, wherein stabilizing the device includes manipulating the fixating hubs to rotate a rotating portion of each of the gripping members.

[Claim 19] The method of claim 14, wherein stabilizing the device includes removing the inner and outer guide wires from the device and from the patient's vein or artery.

[Claim 20] A valve implanting device comprising:

a collapsible frame including (i) a central hub adapted to receive an inner guide wire, (ii) a plurality of spokes extending from the central hub, each spoke having a first end engaging the central hub and a second end opposing the first end, (iii) a plurality of fixating hubs, each fixating hub engaging one of the spokes at the second end of the spoke, and each fixating hub adapted to receive an outer guide wire, and (iv) a plurality of gripping members, each gripping member engaging one of the fixating hubs and an adjacent gripping member;

an inner guide wire removably fastened to the central hub of the frame;

an outer guide wire removably fastened to each of the fixating hubs of the frame;

a plurality of valve flaps, each valve flap attached to at least one of the gripping members; and

wherein the collapsible frame is inserted into a patient's femoral vein or artery in a collapsed shape, guided to a desired deployment position using the inner and outer guide wires, expanded using the inner and outer guide wires, and stabilized in the desired position using the guide wires to manipulate the fixating hubs.